

Please cancel claims 35-37 without prejudice or disclaimer.

38. (Amended) An electrical device [including] comprising a tank for holding a dielectric fluid, wherein said fluid [comprises] consists essentially of one or more vegetable oils that are free of chlorinated compounds, wherein said vegetable oils have a viscosity between about 2 and about 15 cSt at 100 °C, and less than about 110 cSt at 40°C.

Please add the following new claims:

--39. A method of using an electrical device comprising employing in said device a food grade dielectric fluid comprising at least one vegetable oil, wherein said vegetable oil is substantially free of chlorinated compounds.

40. A device capable of generating or distributing electrical energy, wherein the device has incorporated therein a food grade dielectric fluid comprising one or more vegetable oils that are free of chlorinated compounds.

41. A method for refilling an electrical device, comprising:
(a) removing an existing dielectric fluid from the device;
(b) drying the device; and
(c) replacing the existing dielectric fluid with a dielectric fluid consisting essentially of one or more vegetable oils that are free of chlorinated compounds, wherein said vegetable oils have a viscosity between about 2 and about 15 cSt at 100 °C, and less than about 110 cSt at 40°C.--

REMARKS

Claims 1-38 are pending in the application.

X

In this response, claims 1-14 and 35-37 are drawn to a non-elected invention, and are canceled without prejudice or disclaimer. Applicants reserve the right to file divisional applications directed to the subject matter of these claims at a later date.

To more distinctly describe the present invention, a portion of the subject matter of claim 20 is incorporated into independent claims 15, 31 and 38. Claims 16, 20, 33 and 34 are amended to properly depend from the independent claims.

New claims 39-41 are added. Claims 39-40 are directed to a preferred embodiment of the invention in which the dielectric fluid composition is a food grade material. These claims are supported in the specification, for example, on page 8, lines 5-7. Claim 41 is directed to a process for retrofilling existing electrical devices with the dielectric fluid composition. This claim is supported in the specification, for example, on pages 16-17.

In view of the above amendments and the following remarks, Applicants respectfully request further examination of the present application and reconsideration of the rejections and objections in the Office Action dated December 30, 1999.

I. Paragraphs 1-5

In paragraphs 1-5 of the Office Action, pages 2-3, the Examiner provides a written version of the telephone restriction requirement discussed with John Hayden on November 2, 1999. The Examiner confirms that election was made with traverse to prosecute the Group II claims directed to method for using an electrical device with the vegetable oil dielectric composition, claims 15-34 and 38.

Applicants hereby affirm the election of Group II. As noted above, claims 1-14 and 35-37 are canceled without prejudice or disclaimer to the filing of a divisional application at a later date.

II. Paragraph 6

In paragraph 6 of the Office Action, the declaration asserted to be effective because it has not been signed by the inventors.



In response to this objection, a declaration has been submitted to the inventors for signature. However, Applicants' attorneys have not yet received the executed declaration. The executed declaration will be submitted as soon as possible upon receipt from the inventors.

III. Paragraph 7

In paragraph 7, the Examiner notes that certain documents cited in the Information Disclosure Statement were not received.

In response to this notice, Applicants enclose copies of the documents DQ, DR, and DS. Applicants advise that the publication date for document DS is sometime in the mid-1960s.

IV. Paragraph 8


In paragraph 8, claims 16 and 33-34 are rejected under the second paragraph of 35 U.S.C. § 112 as indefinite.

In response to these rejections, as noted above, claims 16 and 33-34 are amended for clarity and to properly depend from their respective independent claims.

V. Paragraphs 9-11

A. In paragraph 10, claims 15-23, 26, 28-29, 31 and 38 are rejected under 35 U.S.C. § 102(b) as anticipated by JP 61-260,503. The Examiner notes that JP '503 discloses a transformer with a dielectric fluid including a vegetable oil and 0.01-5 weight percent of an alkylmethacrylate polymer. This rejection is respectfully traversed for the reasons that follow.

The JP '503 abstract describes a dielectric fluid including a vegetable oil and an alkylmethacrylate polymer. This reference teaches that addition of an alkylmethacrylate polymer increases the reliability of the fluid. In contrast, the presently claimed invention is a dielectric fluid consisting essentially of a vegetable oil that is free of environmentally incompatible chlorine compounds. This dielectric fluid does not require polymeric additives to increase its reliability.



The JP '503 abstract fails to teach or suggest such a dielectric fluid. In addition, based on the teachings of the JP '503 abstract, one of ordinary skill in the art would not be led to modify a vegetable oil composition to eliminate the polymeric reliability enhancer.

In view of the above, Applicants respectfully submit that the invention is neither anticipated under 35 U.S.C. § 102(b) nor obvious under 35 U.S.C. § 103(a) in view of the JP '503 abstract.

B. In paragraph 11, claims 15-23, 28-31 and 38 are rejected under 35 U.S.C. 102(b) as anticipated by U.S. Patent No. 4,806,276 to Maier and U.S. Patent No. 3,702,895 to de Sio. The Examiner states that the references disclose vegetable oils in transformers. These rejections are respectfully traversed for the reasons that follow.

The Maier '276 reference proposes using halogenated hydrocarbons and surfactant additives in dielectric oils to enhance their longevity. The presently claimed invention does not incorporate such additives. In addition, the presently claims dielectric fluid does not include halogenated compounds, which are generally considered to be environmentally unsafe. The cited reference fails to teach or suggest a vegetable oil composition without these potentially toxic additives would be suitable for long-term use in an electrical device. For at least these reasons, Applicants respectfully submit that the presently claimed invention is neither anticipated by nor obvious in view of Maier '276.

The de Sio '895 reference teaches that any flowable dielectric, such as vegetable, mineral or other organic liquids, would be suitable for use in an electrical device (See col. 6, lines 9-12 of the '895 patent.). This reference teaches that castor oil would be a suitable dielectric fluid. However, Applicants advise that the viscosity of castor oil renders the material unsuitable for use in many electrical devices, such as transformers. Castor oil is thick and unflowable within the operating temperature range required for transformer operation, and does not exhibit the proper convective cooling properties required for effective transfer of heat in such an application. The presently claimed dielectric fluid has a viscosity between about 2 and about 15 cSt at 100 °C, and less than about 110 cSt at 40°C, which ensures that the fluid has sufficient coolant properties



for use in transformer applications. The deSio '895 reference fails to teach or suggest this viscosity range, and fails to recognize or appreciate the advantages of using materials with these properties in electrical applications. For these reasons, Applicants respectfully submit that the present invention is neither anticipated by nor obvious in view of diSio '895.

VI. Paragraphs 12-14

A. In paragraph 13, claims 15-31 and 38 are rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 4,734,824 to Sato et al. Sato et al. are cited for their teaching of an aromatic olefin electrical insulating oil suitable for use in capacitors, cables and transformers. According to the Examiner, in view of the teachings in the '824 patent that the aromatic olefin oil may be blended with a vegetable oil (col. 6, lines 18-36), it would be obvious to a worker of ordinary skill in the art to employ a dielectric fluid including a vegetable oil dielectric in an electric device. This rejection is respectfully traversed for the reasons that follow.

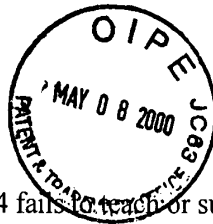
The Sato '824 reference again teaches that aromatic additives are required to provide a suitable vegetable oil dielectric fluid. In contrast, the present invention provides a dielectric fluid that consists essentially of an environmentally safe vegetable oil with specific viscosity properties. This dielectric fluid does not require aromatic additives to increase its stability. The Sato '824 reference fails to teach or suggest such a dielectric fluid. In addition, based on the teachings of the '824 patent, one of ordinary skill in the art would not be led to modify a vegetable oil composition to eliminate the aromatic compounds. Applicants respectfully submit that the invention is not obvious under 35 U.S.C. § 103(a) in view of Sato '824.

B. In paragraph 14, claims 15-34 and 38 are rejected under 35 U.S.C. § 103(a) as obvious over the '824 Sato patent in view of U.S. Patent No. 4,702,966 to Farrell et al. In this rejection the Examiner takes the position that, in view of Farrell et al.'s teachings regarding use of oxidation reducing compounds, it would be obvious to a skilled artisan to provide the vegetable oil containing dielectric of Sato et al. with an oxidation reducing material. This rejection is respectfully traversed for the reasons that follow.



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As noted above, Sato '824 fails to teach or suggest the presently claimed dielectric fluid composition. Farrell likewise fails to teach or suggest the presently claimed material. Whether considered alone or in combination with Farrell '966, the cited references fail to teach or suggest the presently claimed dielectric fluid. Applicants respectfully submit that the subject matter of the present claims is not obvious over Sato '824 in view of Farrell '966.


VII. Conclusion

In view of the above, Applicants respectfully submit that claims are in condition for allowance, which action is requested. Filed herewith is a check in payment of the excess claims fees required by the above amendments and Petition for Automatic Extension with the required fee. Please apply any other charges or credits to Deposit Account No. 06-1050.

If questions remain regarding the above, or if the Examiner wishes to discuss any aspect of the present case in more detail, please contact the undersigned.

Respectfully submitted,

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